

REMARKS

Applicant has carefully reviewed and considered the Office Action mailed on October 16, 2003, and the references cited therewith.

Claims 51, 53, 55, 56, 60, and 66 are amended, no claims are canceled, and no claims are added; as a result, claims 51-56, 60-73, 75, 76, and 81-85 remain pending in this application.

Double Patenting Rejection

The rejection stated that claims 60-61, 63-67, 69-73, 76-78, 81, and 84-85 of this application conflict with claims 48-50 and 60-80 of Application No. 09/940,980. The rejection further stated that claims 60-61, 63-67, 69-73, 76-78, 81, and 84-85 of this application conflict with claims 44-45 and 60-83 of Application No. 09/940,917. The rejection further stated that claims 60-61, 63-67, 69-73, 76-78, 81, and 84-85 of this application conflict with claims 46-47 and 57-52 of Application No. 09/941123.

Applicant will consider a terminal disclaimer when the claims are otherwise in condition for allowance.

§102 Rejection of the Claims

Claims 51, 53-56, 60, 62-66, 68-69, and 71-72 were rejected under 35 USC § 102(b) as being anticipated by Sun et al. (U.S. 4,994,410).

The rejection states that Sun teaches, "a continuous layer of titanium 22 overlying the walls and an exposed base layer of a contact hole. The titanium layer is annealed to form a layer of TiN_xSi_y (titanium alloy)."

Sun appears to show a layer of pure titanium 22 in a contact opening 18 that is heated. A TiN_xSi_y compound appears to be formed during heating on walls of the contact hole 18. A titanium silicide 25 appears to be formed on a bottom of the contact hole 18. However, Sun does not show a continuous electrically conductive, titanium alloy layer formed overlying walls and an exposed base layer of a contact hole, the titanium alloy layer having a similar chemical profile in walls and a base portion of the titanium alloy layer, and a barrier layer coupled to the titanium alloy layer.

In contrast, claims 51, 53, 55, 56, 60, and 66, as amended, include a continuous electrically conductive, titanium alloy layer formed overlying walls and an exposed base layer of a contact hole, the titanium alloy layer having a similar chemical profile in walls and a base portion of the titanium alloy layer, and a barrier layer coupled to the titanium alloy layer. In one embodiment described in Applicant's specification, reaction of titanium with a continuous and substantially homogenous seed layer produces a titanium alloy as recited in the claims.

Because the Sun reference does not show every element of Applicant's independent claims, a 35 USC § 102(b) rejection is not supported. Reconsideration and withdrawal of the rejection is respectfully requested with respect to Applicant's independent claims 51, 53, 55, 56, 60, and 66. Additionally, reconsideration and withdrawal of the rejection is respectfully requested with respect to the remaining claims that depend therefrom as depending on allowable base claims.

§103 Rejection of the Claims

Claim 70 was rejected under 35 USC § 103(a) as being unpatentable over Sun as applied to claim 66 above, and further in view of Ha et al. (U.S. 5,970,309). Applicant respectfully submits that the additional reference of Ha fails to cure the deficiencies of Sun as outlined above with respect to claim 66.

Because the cited references, either alone or in combination, do not show every element of Applicant's independent claims, a 35 USC § 103(a) rejection is not supported by the references. Reconsideration and withdrawal of the rejection is respectfully requested with respect to claim 70.

Allowable Subject Matter

Claims 52, 61, and 67 were objected to as being dependent upon a rejected base claim, but were indicated to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant acknowledges and thanks the Examiner for indication of allowability of claims 52, 61, and 67 if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicant has not amended claims 52, 61, and 67 to place them in independent form at this time. Pursuant to arguments presented above, Applicant respectfully submits that these claims are in condition for allowance as amended.

Claims 73, 75-78, and 81-85 were allowed. Applicant acknowledges and thanks the Examiner for the notice of allowability of these claims.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney ((612) 373-6944) to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743

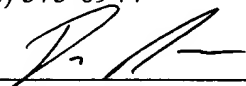
Respectfully submitted,

GURTEJ S. SANDHU ET AL.

By their Representatives,

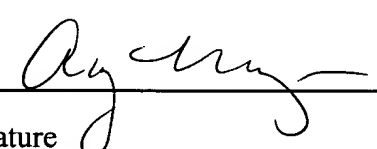
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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 16th day of January, 2004.

Amy Moriarty
Name


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